

CLAIMS

1. (presently amended) A system for creating an output video production from an
5 input video signal~~processing video segments~~, said system including:
means for obtaining at least one ~~creating a~~ descriptor value for each of a
plurality of segments of the input video signal and ascribing at least one value thereto
~~for a corresponding video segment~~; and
means for using a selection rule and said descriptor values to select, from among
10 the plurality of video segments, at least two video segments;
means for using a sequencing rule and said descriptor values of said at least two
selected video segments to derive a sequencing order in which to present said at least
two selected segments, said new sequence being different from the sequence of the
segments in the input video signal; and
15 means for assembling an output video production by including the selected video
segments in the selected order~~from at least two video segments~~, including means for
~~selecting said at least two video segments according to values of at least one descriptor~~
~~corresponding to said at least two video segments and means for sequencing said at~~
~~least two video segments according to values of at least one descriptor corresponding to~~
20 ~~said at least two video segments.~~
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2. (presently amended) The system as in claim 1, further including means for
displaying at least one grid, each of said at least one grid having ~~as~~ references
representations of the plurality of video segments~~said at least two video segments~~ for a
25 first axis and ~~said at least one descriptor corresponding to~~ the plurality of~~said at least~~
~~two video segments for a second axis~~, wherein each cell in said at least one grid
displays a representation of at least one descriptor value ascribed to one of said at least
one descriptors corresponding to one of the plurality of~~said at least two~~ video segments.
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3. (original) The system as in claim 2, wherein said at least one grid
includes a plurality of rows, said plurality of rows including:

a row visually representing the plurality of said at least two video segments;
a row visually representing audio content of the plurality of said at least two
video segments; and

a row providing time-series graphical representations of a plurality of descriptor
5 values ~~of a descriptor~~ corresponding to one of the plurality of said at least two video
segments,
wherein the temporal extent of each of the plurality of said at least two video segments
is indicated in one of said plurality of rows.

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4. (presently amended) The system as in claim 3, wherein said at least one grid
further includes first and second grid, wherein when said a video material signal is input
into said system, said first grid represents said input video signal material in
substantially an original state and second grid represents said output video production,
15 and a change to said first grid causes a corresponding change to said second grid.

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5. (presently amended) The system as in claim 1, further including means for
creating transitions between selected video segments.

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6. (presently amended) The system as in claim 5, wherein said means for creating
transitions includes means for creating video dissolves or audio cross fades between
selected video segments.

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7. (presently amended) The system as in claim 1, wherein said means for
obtaining said creating a descriptor values includes means for importing a descriptor
from the input video signal and at least one value for said descriptor which is ascribed
to each segment of the input video signal, wherein said at least one value is thereto
created prior to importation into said system.

8. (presently amended) The system as in claim 1, wherein said means for obtaining said ~~creating a descriptor values~~ includes means for performing an automatic extracting a value for a descriptor corresponding to a video segment by applying signal analysis of each of the segments of the input video signal and ascribing at least one value thereto based on the analysis ~~video or audio content to said video segment.~~

9. (presently amended) The system as in claim 1, wherein said means for obtaining said ~~creating a descriptor values~~ includes means for creating said at least one descriptor value for each video segment ~~a value for a descriptor corresponding to one of said at least two video segments~~ by assigning an ordinal number to each of the segments of the input video signal in accordance with the position of the respective video segments thereof in the plurality of segments of the input video signal ~~said at least two video segments.~~

10. (presently amended) The system as in claim 1, wherein said means for obtaining said descriptor values ~~ascribing at least one value to a descriptor~~ includes means for ascribing said at least one descriptor value to each segment of the input video signal by using a formula or algorithm having a reference to at least a second one other descriptor value.

Claims 11 to 14 (Withdrawn)

15. (presently amended) The system as in claim 1, further including means for segmenting an input video signal ~~material input into said system~~ into the plurality of video segments by enabling definition or adjustment of start and end times of a video segment by direct user manipulation.

16. (presently amended) The system of claim 1, further including means for deriving a single value from a plurality of temporally successive values of a descriptor corresponding to one of said plurality of ~~at least two video segments.~~

Claims 17 to 18 (Withdrawn)

19. (original) The system as in claim 1, further including means for
5 providing playback of said output video production.

20. (presently amended) The system as in claim 1, wherein said means for selecting
at least two video segments ~~means~~ includes a selection rule which selects said at least
10 two video segments according to whether said at least one descriptor value for each
segment values of said at least one descriptor lies substantially within a range of target
values.

Claim 21 (Canceled)

15 ~~21. The system as in claim 1, wherein said selecting means further includes means~~
~~for manually selecting said at least two video segments by direct user manipulation.~~

22. (presently amended) The system as in claim 1, wherein said means for deriving
20 a sequencing order comprises means for ordering orders said at least two selected video
segments according to the difference between ~~values of~~ said at least one descriptor
value for each respective selected video segment and a target value.

Claim 23 (Canceled)

25 ~~23. The system as in claim 1, wherein said sequencing means further includes means~~
~~for manually sequencing said at least two video segments by direct user manipulation.~~

24. (presently amended) A computerized method for creating an output video
30 production from an input video signal processing video segments, the said method
including the steps of:

(a) obtaining at least one ~~creating~~ descriptor value for each of a plurality of video segments of the input video signal and ascribing at least one value thereto for a corresponding video segment; and
assembling an output video production from at least two video segments, said
5 assembling step including the steps of
(b) using a selection rule and said descriptor values to select, from among the plurality of video segments, selecting said at least two video segments; according to values of at least one descriptor corresponding to said at least two video segments, and
(c) using a sequencing rule and said descriptor values of said at least two
10 selected video segments to derive a sequencing order in which to present said at least two selected segments, said new sequence being different from the sequence of the segments in the input video signal, and said at least two video segments according to values of at least one descriptor corresponding to said at least two video segments.
(d) assembling the output video production including the selected video
15 segments in the selected order.

25. (presently amended) The method as in claim 24, further including the step of displaying at least one grid, each of said at least one grid having as references representations of the plurality of video segments of said at least two video segments for
20 a first axis and said at least one descriptor corresponding to the plurality of said at least two video segments for a second axis, wherein each cell in said at least one grid displays a representation of at least one descriptor value ascribed to one of said at least one descriptors corresponding to one of the plurality of said at least two video segments.

25 26. (presently amended) The method as in claim 25, wherein said step of displaying said at least one grid includes the step of displaying a plurality of rows, said plurality of rows including:
a row visually representing the plurality of said at least two video segments;
a row visually representing audio content of the plurality of said at least two
30 video segments; and

a row providing time-series graphical representations of a plurality of descriptor values ~~of a descriptor~~ corresponding to one of the plurality of video segments ~~said at least two video segments~~,

wherein the temporal extent of each of the plurality of video segments ~~said at least two video segments~~ is indicated in one of said plurality of rows.

27. (presently amended) The method as in claim 26, wherein said step of displaying said at least one grid includes the step of displaying first and second grids, wherein when ~~the an~~ input video signal material is provided, said first grid represents ~~the said input video signal material~~ in substantially an original state and said second grid represents said output video production, and a change to said first grid causes a corresponding change to said second grid.

28. (presently amended) The method as in claim 24, further including the step of creating transitions between said selected video segments.

29. (presently amended) The method as in claim 28, wherein said step of creating transitions includes the step of creating video dissolves or audio cross fades between said selected video segments.

30. (presently amended) The method as in claim 24, wherein said step of obtaining ~~said creating a~~ descriptor values includes the step of importing from the input video signal a descriptor and at least one value for said descriptor which is ascribed to each segment of the input video signal wherein said at least one value is ~~thereto-created prior to importation into said system~~.

31. (presently amended) The method as in claim 24, wherein said step of obtaining
creating a said descriptor values is performed by performing an includes the step of
extracting a value for a descriptor corresponding to a video segment by applying
automatic signal analysis of each of the segments of the input video signal video or
5 audio content to said video segment.

32. (presently amended) The method as in claim 24, wherein said step of obtaining
said creating a descriptor values is performed includes the step of creating a value for a
descriptor corresponding to one of said at least two video segments by assigning an
10 ordinal number to each of the segments of the input video signal in accordance with the
position of the respective video segments thereof in the plurality of segments of the
input video signal said at least two video segments.

33. (presently amended) The method as in claim 24, wherein said step of of
15 obtaining said ascribing at least one value to a descriptor values is performed by
includes the step of ascribing said at least one descriptor value to said descriptor each
segment of the input video signal by using a formula or algorithm having a reference to
at least a second one other descriptor value.

20 Claims 34 to 37 (Withdrawn)

38. (presently amended) The method as in claim 24, further including the further
step performed before step (a) of of segmenting the an input video signal material into
video segments by enabling definition or adjustment of start and end times of a video
25 segment by direct user manipulation.

39. (presently amended) The method as in claim 24, further including the further
step of deriving a single value from a plurality of temporally successive values of a
30 descriptor corresponding to one of said at least two video segments.

Claims 40 to 41 (Withdrawn)

42. (original) The method as in claim 24, further including the step of playing back said output video production.

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43. (presently amended) The method as in claim 24, wherein said selection rule in said step (b) of selecting at least two video segments ~~selecting step~~ includes the step of selecting said at least two video segments according to whether said at least one descriptor values for each segment of said of least one descriptor lies substantially within a range of target values.

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Claim 44(Canceled)

~~44. The method as in claim 24, wherein said selecting step includes the step of manually selecting said at least two video segments by direct user manipulation.~~

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45. (presently amended) The method as in claim 24, wherein said sequencing rule in said step (c) of deriving a sequencing order ~~step~~ includes the step of ordering said at least two selected video segments according to the difference between values of said at least one descriptor value for each respective selected video segment and a target value.

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Claim 46 (Canceled)

~~46. The method as in claim 24, wherein said sequencing step further includes the step of manually sequencing said at least two video segments by direct user manipulation.~~

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47. (presently amended) A computer program product for creating an output video production from an input video signal ~~processing video segments~~, said product including:

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a computer usable medium having computer readable program code means embodied in said medium for processing said input video signal ~~video segments~~, said computer program product having:

computer readable program code means for obtaining at least one creating a descriptor value for each of a plurality of segments of the input video signal and ascribing at least one value thereto for a corresponding video segment; and

computer readable program code means for using a selection rule and said
 5 descriptor values to select, from among the plurality of video segments, at least two video segments;

computer readable program code means for using a sequencing rule and said
descriptor values of said at least two selected video segments to derive a sequencing
order in which to present said at least two selected segments, said new sequence being
 10 different from the sequence of the segments in the input video signal, and

computer readable program code means for assembling an output video
 production by including the selected video segments in the selected order from at least
two video segments, including

computer readable program code means for selecting said at least two video
 15 segments according to values of at least one descriptor corresponding to said at least
two video segments, and

computer readable program code means for sequencing said at least two video
segments according to values of at least one descriptor corresponding to said at least
two video segments.

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48. (presently amended) The product as in claim 47, further including computer
 readable program code means for displaying at least one grid, each of said at least one
 grid having as references representations of the plurality of said at least two video
 25 segments for a first axis and said at least one descriptor corresponding to the plurality of
said at least two video segments for a second axis, wherein each cell in said at least one
grid displays a representation of at least one descriptor value ascribed to one of said at
least one descriptors corresponding to one of the plurality of said at least two video
segments.

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49. (presently amended) The product as in claim 47, wherein said computer readable program code means for display said at least one grid, includes computer readable program code means for displaying a plurality of rows, said plurality of rows including:

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a row visually representing the plurality of ~~said at least two~~ video segments;

a row visually representing audio content of the plurality of ~~said at least two~~ video segments; and

10 a row providing time-series graphical representations of a plurality of descriptor values ~~of a descriptor~~ corresponding to one of the plurality of ~~said at least two~~ video segments,

wherein the temporal extent of each of the plurality of ~~said at least two~~ video segments is indicated in one of said plurality of rows.

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50. (presently amended) The product as in claim 49, wherein said computer readable program code means for displaying said at least one grid further includes computer readable program code means for displaying first and second grids, wherein
20 when ~~the an~~ input video signal material is provided, said first grid represents said input video signal material in substantially an original state and second grid represents said output video production, and a change to said first grid causes a corresponding change to said second grid.

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51. (presently amended) The product as in claim 47, further including computer readable program code means for creating transitions between selected video segments.

30 52. (presently amended) The product as in claim 51, wherein said computer readable program code means for creating transitions includes computer readable

program code means for creating video dissolves or audio cross fades between selected video segments.

5 53. (presently amended) The product as in claim 47, wherein said computer readable program code means for obtaining said ~~creating a~~ descriptor values includes computer readable program code means for importing a descriptor from the input video signal and at least one value for said descriptor which is ascribed to each segment of the input video signal, wherein said at least one value is thereto-created prior to importation
10 into said system.

54. (presently amended) The product as in claim 47, wherein said computer readable program code means for obtaining said ~~creating a~~ descriptor values includes
15 computer readable program code means for performing an automatic ~~extracting a value for a descriptor corresponding to a video segment by applying~~ signal analysis of of each of the segments of the input video signal and ascribing at least one value thereto based on the analysis ~~or audio content to said video segment.~~

20 55. (presently amended) The product as in claim 47, wherein said computer readable program code means for obtaining said ~~creating a~~ descriptor values includes computer readable program code means for creating said at least one descriptor value for each video segment ~~a value for a descriptor corresponding to one of said at least two video segments~~ by assigning an ordinal number in accordance with the position of the respective video segments thereof in the plurality of segments of the input video signal ~~said, at least two video segments.~~

56. (presently amended) The product as in claim 47, wherein said computer
30 readable program code means for obtaining said descriptor values ~~ascribing at least one value to a descriptor~~ includes computer readable program code means for ascribing said at least one descriptor value to each segment of the input video signal by said descriptor

using a formula or algorithm having a reference to at least a second one other descriptor value.

Claims 57 to 59 (Withdrawn)

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60. (original) The product as in claim 47, wherein said computer readable program code means for segmenting includes computer readable program code means for identifying and representing a different set of video segments for each of said at least one descriptor.

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61. (presently amended) The product as in claim 57, further including computer readable program code means for segmenting the an input video signal material into the plurality of video segments by enabling definition or adjustment of start and end times of a video segment by direct user manipulation.

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62. (presently amended) The product as in claim 47, further including computer readable program code means for deriving a single value from a plurality of temporally successive values of a descriptor corresponding to one of said plurality of at least two video segments.

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Claims 63 to 64 (Withdrawn)

25 65. (original) The product as in claim 47, further including computer readable program code means for providing playback of said output video production.

66. (presently amended) The product as in claim 47, wherein said computer readable program code means for selecting said at least two video segments ~~according to values of at least one descriptor corresponding to said at least two video segments~~ include computer readable program code means selection rules which for selecting said

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at least two video segments according to whether ~~values of~~ said at least one descriptor value lie substantially within a range of target value.

Claim 67 (Canceled)

5 ~~67. The product as in claim 47, wherein said computer readable program code means for selecting said at least two video segments according to values of at least one descriptor corresponding to said at least two video segments includes computer readable program code means for manually selecting said at least two video segments by direct user manipulation.~~

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68. (presently amended) The product as in claim 47, wherein said computer readable program code means for deriving a sequencing order ~~said at least two video segments according to values of at least one descriptor corresponding to said at least~~
15 ~~two video segments~~ includes computer readable program code means for ordering said at least two selected video segments according to the difference between ~~values of~~ said at least one descriptor value for each respective selected video segment and a target value.

20 Claim 69 (Canceled)

~~69. The method as in claim 47, wherein said computer readable program code means for sequencing said at least two video segments according to values of at least one descriptor corresponding to said at least two video segments means includes computer readable program code means for manually sequencing said at least two video~~
25 ~~segments by direct user manipulation.~~

Claims 70 to 99 (Withdrawn)

Please add new claims 100 to 117 as follows:

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100. (new) The system as in claim 1, wherein said means for selecting at least two video segments further includes means for choosing the selection rule from a

predefined set of selection rules.

101. (new) The system as in claim 1, wherein said means for deriving a sequencing order further includes means for choosing the sequencing rule from a
5 predetermined set of sequencing rules.

102. (new) The system as in claim 1, further including means for defining the segments of the input video signal, said means including :
means for obtaining at least two time series descriptors, each time series
10 descriptor representing the value of a characteristic of the input video signal at each of a series of successive time periods; and
means for using at least one of the time-series descriptors to derive a set of segment boundary times, the segment boundary times defining said segments of the input video signal;
15 wherein said means for obtaining descriptor values automatically obtains at least one descriptor value for each of said segments of the input video signal by using at least a second of the time series descriptors.

103. (new) The system as in claim 1, wherein said means for obtaining
20 descriptor values includes:
means for obtaining a first said descriptor value for each of said segments;
means for ascribing at least one second descriptor value to at least a first of said segments;
means for grouping said first segment with at least one other of the segments
25 according to the values of said first descriptor value, and
means for selectively copying said second descriptor value to said one or more other segments.

104. (new) The system as in claim 1, further comprising:
30 display means for allowing a user to view said output production;
data input means for receiving instructions from the user to modify at least one of:

(i) the descriptor values;

(ii) the selection rule;

(iii) the sequencing rule;

said means for obtaining descriptors, means for selecting at least two video
5 segments, means for deriving a sequencing order and means for assembling an output
video production being arranged to generate a modified output production based on the
the modified descriptor values, selection rule and/or sequencing rule.

105. (new) A system for creating an output video production from an input
10 video signal, the system comprising:

means for obtaining at least two time series descriptors, each of said time series
descriptors representing the value of a characteristic of the input video signal at each of
a series of successive time periods;

means for using at least one of the time-series descriptors to derive a set of
15 segment boundary times, the segment boundary times defining a plurality of segments
of the input video signal;

means for applying a descriptor reduction rule to at least a second one of the
time series descriptors to obtain automatically at least one segment descriptor for each
of said segments of the input video signal, the or each segment descriptor having a
20 single value for each respective segment of the input video signal;

means for using a selection rule and said descriptor values to select, from
among the plurality of video segments, at least two segments; and

means for assembling the output video production including the selected video
segments.

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106. (new) A method as in claim 24 including a further step of choosing the
selection rule from a predefined set of selection rules.

107. (new) A method as in claim 24 including a further step of choosing the
30 sequencing rule from a predetermined set of sequencing rules.

108. (new) The method as in claim 24, including the further steps, performed before step (a), of defining the segments of the input video signal by:

obtaining at least two time series descriptors, each time series descriptor representing the value of a characteristic of the input video signal at each of a series of successive time periods;

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using at least one of the time-series descriptors to derive a set of segment boundary times, the segment boundary times defining said segments of the input video signal; and

said step (a), of obtaining at least one descriptor value for each said segments of the input video signal, being performed automatically using at least a second of the time series descriptors.

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109. (new) A method according to claim 24 in which said step (a) of obtaining at least one descriptor value for each of said segments of the input video signal includes:

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obtaining a first said descriptor value for each of said segments;

ascribing at least one second descriptor value to at least a first of said segments;

grouping said first segment with at least one other of the segments according to the values of said first descriptor value,

selectively copying said second descriptor value to said one or more other segments.

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110. (new) A method according to claim 24 including, at least once, performing the further steps of:

(e) allowing a user to view said output production;

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(f) receiving instructions from the user to modify at least one of:

(i) the descriptor values;

(ii) the selection rule;

(iii) the sequencing rule; and

(g) repeating steps (a) to (d) based on the modified descriptor values, selection rule and/or sequencing rule to obtain a modified output production.

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111. (new) A computerized method for creating an output video production from an input video signal, the method including the steps of:

(a) obtaining at least two time series descriptors, each of said time series descriptors representing the value of a characteristic of the input video signal at each of a series of successive time periods;

(b) using at least one of the time-series descriptors to derive a set of segment boundary times, the segment boundary times defining a plurality of segments of the input video signal;

(c) applying a descriptor reduction rule to at least a second one of the time series descriptors to obtain automatically at least one segment descriptor for each of said segments of the input video signal, the or each segment descriptor having a single value for each respective segment of the input video signal; and

(d) using a selection rule and said descriptor values to select, from among the plurality of video segments, at least two segments;

(e) assembling the output video production including the selected video segments.

112. (new) The product as in claim 47, wherein said computer readable program code means for selecting at least two video segments further includes computer readable program code means for choosing the selection rule from a predefined set of selection rules.

113. (new) The product as in claim 47, wherein said computer readable program code means for deriving a sequencing order further includes computer readable program code means for choosing the sequencing rule from a predetermined set of sequencing rules.

114. (new) The product as in claim 47, further comprising computer readable program code means for segmenting the input video signal into the plurality of video segments, said means including

computer readable program code means for obtaining at least two time series descriptors, each time series descriptor representing the value of a characteristic of the

input video signal at each of a series of successive time periods; and

computer readable program code means for means for using at least one of the time-series descriptors to derive a set of segment boundary times, the segment boundary times defining said segments of the input video signal;

5 wherein said computer readable program code means for means for obtaining said descriptor values automatically obtains at least one descriptor value for each of said segments of the input video signal by using at least a second of the time series descriptors.

10 115. (new) The product as in claim 47, wherein said computer readable program code means for obtaining descriptor values includes:

computer readable program code means for obtaining a first said descriptor value for each of said segments;

15 computer readable program code means for ascribing at least one second descriptor value to at least a first of said segments;

computer readable program code means for grouping said first segment with at least one other of the segments according to the values of said first descriptor value, and

computer readable program code means for selectively copying said second descriptor value to said one or more other segments.

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116. (new) The product according to claim 47, further comprising computer readable program code means for performing at least once the further steps of:

allowing a user to view said output production;

receiving instructions from the user to modify at least one of:

25 (i) the descriptor values;

(ii) the selection rule;

(iii) the sequencing rule; and

using said computer readable program code means for obtaining descriptors,

selecting at least two video segments, deriving a sequencing order and assembling an

30 output video production to obtain a modified output production based on the the modified descriptor values, selection rule and/or sequencing rule.

117. (new) A computer program product for creating an output video production from an input video signal, said product including:

a computer usable medium having computer readable program code means embodied in said medium for processing said input video signal, said computer

5 program product having:

computer readable program code means for obtaining at least two time series descriptors, each of said time series descriptors representing the value of a characteristic of the input video signal at each of a series of successive time periods;

10 computer readable program code means for using at least one of the time-series descriptors to derive a set of segment boundary times, the segment boundary times defining a plurality of segments of the input video signal;

computer readable program code means for applying a descriptor reduction rule to at least a second one of the time series descriptors to obtain automatically at least one segment descriptor for each of said segments of the input video signal, the or each
15 segment descriptor having a single value for each respective segment of the input video signal;

computer readable program code means for using a selection rule and said descriptor values to select, from among the plurality of video segments, at least two segments; and

20 computer readable program code means for assembling the output video production including the selected video segments.

segment.

By contract, Abecassis only discloses dividing the various scenes 302 of the input video program into appropriate segments 303 according to a manual evaluation (see col. 7, lines 28-38) of the contents of the scenes. The content Abecassis refers to is related to the storyline of the program such as violence, profanity, motion picture rating (see col. 9, lines 16-30 and Figure 3). There is no suggestion that the derivation of segment boundary times should be performed using time series descriptors or that the time series descriptors should be reduced to obtain segment descriptors which have single values for each segment of the input video (defined in claim 105). Since Abecassis neither discloses nor suggests the features of new independent claim 105, we submit that claim 105 as well as claims 111 and 117 which include the same inventive features are both novel and inventive over Abecassis.

Respectfully submitted,

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